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ARTICLE

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ABSTRACT

OBJECTIVES. The objectives of this study were to characterize (1) families' cumulative burden of health-related social problems regarding access to health care, housing, food security, income security, and intimate partner violence; (2) families' experiences regarding screening and referral for social problems; and (3) parental acceptability of screening and referral.

METHODS. We surveyed 205 parents of children who were 0 to 6 years of age and attended 2 urban pediatric clinics for a well-child visit using a self-administered, computer-based questionnaire. The questionnaire included previously validated questions about health-related social problems and new questions about screening and referral in the past 12 months.

RESULTS. A total of 205 (79%) of 260 eligible families participated. Eighty-two percent of families reported ≥1 health-related social problem; 54% experienced problems in ≥2 social domains. Families experienced similar types and frequencies of problems despite demographic differences between clinics. One third of families reported no screening in any domain in the previous 12 months. Of 205 families, 143 (70%) identified at least 1 need for a referral; 101 (49%) expressed ≥1 unmet referral need. Of families who reported receiving referrals, 115 referrals were received by 79 families; of the referrals made, 63% (73 of 115) led to contact with the referral agency, and 82% (60 of 73) of the referral agencies were considered helpful. A computer-based system in a pediatrician's office for future screening and referral for health-related social problems was deemed acceptable by 92% of parents.

CONCLUSIONS. Urban children and families reported a significant burden of health-related social problems yet infrequent pediatric screening or referral for these problems. Of families who reported receiving referrals, a majority contacted the recommended agencies and found them helpful. This study also demonstrates the feasibility of using a computer-based questionnaire to identify health-related social problems in a routine outpatient clinic setting.

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Key Words
social problems, screening, referral, access to health care, housing, hunger, income, domestic violence, computer, pediatric

Abbreviations
AAP—American Academy of Pediatrics
HRSP— health-related social problem
AHP—academic health practice
CHC— community health center
CCHIP—Childhood Community Hunger Identification Project
FPL—federal poverty level
CI— confidence interval

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THE AMERICAN ACADEMY of Pediatrics (AAP) states that its mission "is to attain optimal physical, mental and social health and well-being for all infants, children, adolescents and young adults."[1] To fulfill this charge, pediatricians must address medical problems as well as social and economic issues that can adversely affect health. Children are particularly vulnerable to problems such as food insecurity and substandard housing,[2,3] and their effects can be lifelong. Providing assistance for families' health-related social problems (HRSPs) requires systematic screening and referral.

Although the AAP recommends screening for major social problems in primary care settings,[4–7] the extent of comprehensive screening for HRSPs in routine practice is unknown. The rate of screening for intimate partner violence alone may be as low as 5%.[8] Whereas parents' approval of screening for intimate partner violence is well documented,[9–11] no research published to date has evaluated parents' support for comprehensive screening for HRSPs in pediatric settings.

In this study, families with young children provided self-assessments of HRSPs by completing a computer-based questionnaire before a clinic visit. We specifically evaluated (1) the presence of HRSPs in 5 social domains, (2) the frequency of pediatric screening and referral for these problems, and (3) families' attitudes toward screening and referral for HRSPs.

METHODS

Design and Participant Selection

This is a cross-sectional, descriptive study of families' self-assessed health-related social problems and referral needs conducted in August to September 2003 at 2 outpatient pediatric clinics in Boston: 1 academic health practice (AHP) and 1 community health center (CHC). Each family was represented by a primary caregiver. Adults in clinic waiting areas were screened consecutively by 1 of 4 bilingual research assistants as a computer became available; not all eligible participants were screened because of limited computer availability.[12] Eligibility requirements were (1) the adult was a parent or primary caregiver of the child (referred to from here forward as "parent"), (2) the child was 0 to 6 years of age, (3) the child was at the clinic for a well-child visit, and (4) the parent could read English or Spanish. Information from all adults approached, including reason for exclusion or refusal to participate, was collected.

The purpose of the study was explained to eligible parents, and written informed consent was obtained. The survey was an anonymous, self-administered, computer-based questionnaire available in English or Spanish. Participants completed the 20-minute survey on 1 of 2 laptop computers equipped with privacy screens. All participants in the final study received a referral sheet listing local agencies that could help with problems in each of the social domains. The study was approved by the Committee on Clinical Investigation of Children's Hospital Boston.

Survey Instrument and Measures

The survey instrument focused on HRSPs and experiences and opinions related to screening and referral for social problems (Table 1; the original questionnaire may be viewed at www.onlineadvocate.org). A possible inclusion list of 25 social domains was initially derived using literature review and key informant interviews with health and social services experts. A modified Delphi technique was used to select the top 5 most relevant topics for inclusion. The 5 health-related social domains were (1) access to health care, (2) housing, (3) food security, (4) income security, and (5) intimate partner violence. Confidentiality and anonymity were protected and emphasized throughout the computer survey pro-

TABLE 1 **Survey-Item Categories**

Health-Related Social Domains	Previous Experiences	Parental Opinions	Demographics
Access to health care	Social problems	Acceptability of screening individual social domains	Parent and child ages
No health insurance	Screened	Acceptability of using computer to screen and refer in pediatric office	Parent and child genders
Missed medical care	Referred	Comfort using computer	Education level
Missed prescriptions	Referral agencies	Distance willing to travel	Race/ethnicity
Housing	Followed up		Marital status
Homeless or doubled up	Helpfulness		Immigration status
Utilities shut off			Household composition
Major housing problem			Income
Food security			Transportation availability
Food-insecure or hungry			Language
Income security			
Unemployed and looking for work			
Intimate partner violence			
Verbal abuse			
Physical abuse			

cess. The survey did not collect any identifying data or contain any links to the informed consent.

The survey instrument combined previously validated questions and scales to assess the social domains as well as new questions to assess experience with social problem screening and referral. Questions in the health-related social domains evaluated the presence and the extent of problems, use of available social services, and barriers to access that families experienced. The survey used a response-driven, branched questionnaire that ranged from 90 to 166 questions.

The access to health care domain included questions from the National Health Interview Survey,[13] Behavioral Risk Factor Surveillance System,[14] and Child Care Experience and Needs Questions[15] and assessed for both the parent and the child their health insurance status (presence/absence and type of health care coverage, reason without health insurance), use of primary care providers and usual source of care, and problems receiving medical services and/or medications within the previous 12 months (and reason for problem). An access to health care problem included either current lack of health insurance or inability to receive medical care or fill a prescription during the previous 12 months for the parent or the child.

The housing domain included questions from the American Housing Survey[16] and assessed household size and makeup, current housing status (own/rent/doubled up/homeless), cost of housing, concerns about impending eviction, and previous 12-month experiences with homelessness/doubled up (presence and duration), housing utilities (threatened/shut off/receipt of fuel assistance), and housing hazards. Housing hazards within the past 12 months included: roof leaked, problems with electrical wiring, no heat for >24 hours, and water leaks in the home from inside (pipes, sinks, toilets) and outside (walls, roof). Housing hazards within the past 3 months included: none of the toilets worked, any rats or mice in home or building, any cockroach/insect infestation, no running water in the house, and broken utilities. A housing problem included either currently homeless or doubled up, utilities shut off during the previous 12 months, or a major structural housing problem as defined by the American Housing Survey and validated in previous research studies.[17]

The food security domain included the previously validated 8-point food security scale from the Childhood Community Hunger Identification Project (CCHIP).[18–20] The CCHIP asks the parent to think about the past 12 months and answer questions about (1) running out of money to buy food, (2) using a limited number of foods to feed the family, (3) adults eating less than they should, (4) adults skipping meals, (5) children eating less than they should, (6) children saying that they were hungry because of lack of food, (7) children skipping meals, and (8) children going to bed hungry because of lack of food. Additional questions assessed use of food stamps and participation in the Supplemental Nutrition Program for Women, Infants, and Children. A food security problem was defined as food insecure (1–4 positive responses) or frank hunger (5–8 positive responses) according to the CCHIP scale.

The income security domain used questions from the Philadelphia Survey of Work and Family[21] and surveys noted previously.[13–15] Questions assessed employment status (employed/self-employed/out of work [duration]/homemaker/student/retired/unable to work), reason for difficulty finding/maintaining work, use of job training/job placement/interest in getting a paid job, and household income, as well as use, duration, and amount of welfare,[22] Supplemental Security Income, and child support. Additional questions assessed problems with and reasons for missing work and for missing medical appointments. An income security problem was narrowly defined as being currently unemployed and looking for work.

The intimate partner violence domain included an introduction and 3 questions that were used previously to screen women with young children.[10] These questions included the following: "In the past year, have you been emotionally or verbally abused by your partner or someone important to you; for example, has anyone sworn at you, threatened you, or threatened to throw something at you?" "In the past year, have you been hit, slapped, kicked, or otherwise physically hurt by your partner or someone close to you?" and, "Do you feel safe in your current relationship?" Additional questions assessed the type of intimate partner violence experienced and use of medical care or services related to violence. An intimate partner violence problem was defined as verbal or physical abuse during the previous year.

Previous experience with screening and referral was assessed with a series of up to 5 questions for each social domain. Referral need in each domain was ascertained using the following question: "In the past 12 months, have you been given a referral to an agency to help you with your [domain category]?" A response of "yes" or "no, but I wanted a referral," defined a referral need (versus, "No, and I did not want a referral" or "not sure"). A question at the end of the survey asked, "Think about the survey you have just completed. How would you feel about taking a computer-based survey in your doctor's waiting room that evaluated a family's social issues and made referrals to local agencies?" Reply options were (1) welcome it, (2) not mind at all, (3) be mildly annoyed, and (4) be very annoyed.[10]

Computer Program

The computer program was adapted from the Promote Health Survey[11,12] with permission of the principal investigator. The forced-answer, branched questionnaire asked questions that were personalized with the child's

first name using a single question per screen. The survey consisted of yes/no, multiple-choice, fill-in-the-blank, and checklist questions. A figure on the bottom of the screen tracked the percentage of completion of the survey. Data were collected and stored using Microsoft Access and Excel 2002/SP-2 (Microsoft Corp, Redmond, WA).

Translation and Testing

The survey wording was translated, back-translated, and refined by professional translators who represented 6 different Spanish-speaking countries. The English version was at a fifth- to sixth-grade reading level and the Spanish version was at a fourth- to fifth-grade reading level.[23] A focus group of 13 volunteer parents and health care providers pilot-tested the computerized questionnaire for usability, content, and construct validity.

Analysis

The primary outcome measures were the percentages of families who (1) experienced HRSPs; (2) received screening for social problems, received needed referrals, and found referral agencies helpful; and (3) reported willingness to use computer-based screening and referral for social problems in pediatric settings in the future. Although demographics differed between the 2 clinic sites, the frequencies of HRSPs, the experience with referrals, and acceptability of screening were similar. Therefore, data from the 2 clinic settings were combined to provide a descriptive analysis of the families' burden of HRSPs, parental experiences with screening and referral, and parental opinions. Between-site differences in demographics and all outcome measures were tested by using the χ^2 and Student's t test when appropriate and are noted when statistically significant differences exist. Differences in presence of social problems by demographics and household characteristics were tested by using the χ^2 test. All statistical tests were 2-tailed and considered significant at $P < .05$. All analyses were performed using SPSS 11.1 (SPSS, Chicago, IL).

RESULTS

Study Population

During a 5-week period, trained research assistants approached 450 families. A total of 190 did not meet inclusion criteria. Among the 260 eligible parents, 79% (205 of 260) agreed to participate. Ninety-four percent (193 of 205) of participants completed the entire survey, and an additional 5 completed the HRSP questions but not the demographics (Fig 1). Demographics of eligible parents who refused are not available.

Thirty-four percent (70 of 205) of parents took the survey in Spanish. Of the 193 surveys completed, average time to completion was 20 minutes, and participants answered an average of 123 questions (interquartile range: 117–128). Table 2 depicts demographics of the surveyed participants. Overall, 57% of parents were Hispanic and 29% were black. Among respondents, 34% had not completed high school and 62% were immigrants; 62% had a family income at or below the poverty level.

HRSPs

Of the 198 families who completed all 5 social domains, 162 (82%) had ≥1 HRSP. Comorbidity was high: of the 198 families, 28% experienced 1 HRSP, 32% experienced 2 HRSPs, and 22% experienced ≥3 HRSPs. Demographic variables that correlated with higher risk for having an HRSP are shown in Table 2 and included

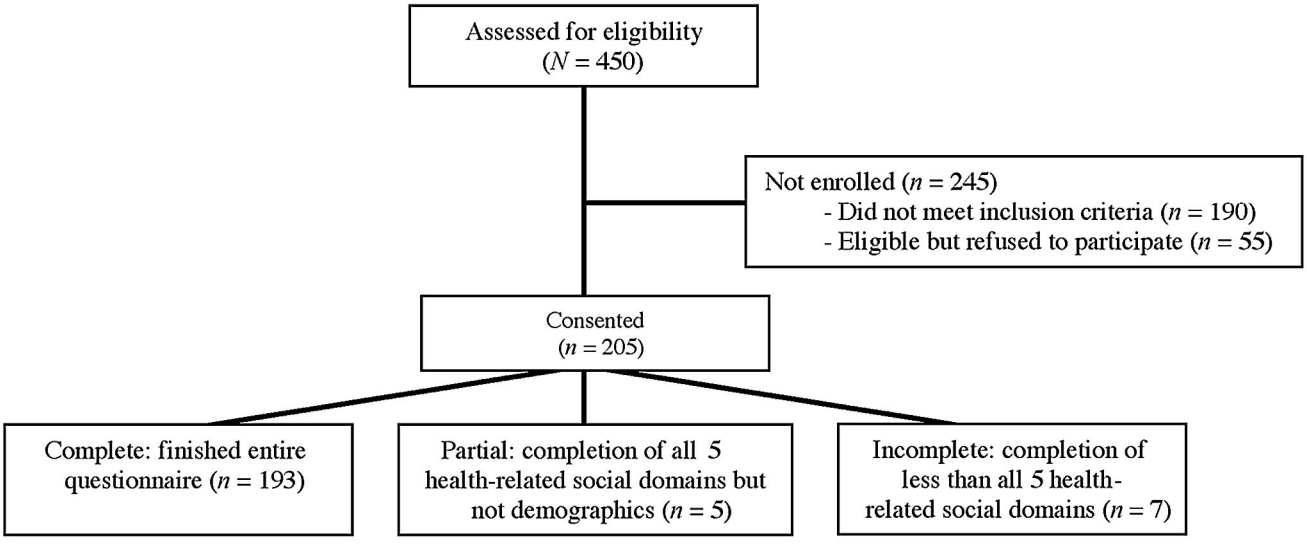

FIGURE 1
Recruitment and completion of the computer-based survey.

TABLE 2 **HRSPs Experienced by Families ($n = 193$) in the Preceding 12 Months**

Demographic	Total ($n = 193$), n (%)	≥1 HRSP, %	P
Mean (SD) age of parent, y	29.3 (6.3)		
Mean (SD) age of child, y	2.1 (1.9)		
Parent gender			
Female	174 (90)	82	
Male	19 (10)	79	.777
Child gender			
Female	100 (52)	82	
Male	93 (48)	81	.809
Parent race/ethnicity[a]			
Hispanic	110 (57)	85	
Black	55 (29)	84	
White/mixed/other	28 (15)	64	.043
Parent education[a]			
No high school degree	66 (34)	85	
High school diploma or GED	58 (30)	88	
Some college or more	70 (36)	73	.066
Parent immigration status[a]			
Undocumented/unsure	28 (15)	93	
Legal immigrant	90 (47)	83	
Born in US	75 (39)	75	.087
Parent relationship status			
Single, no partner	61 (32)	89	
Single, living separate from partner	31 (16)	94	
Single, living with partner	30 (16)	77	
Married	71 (37)	72	.021
Median household size, No. of people	4		
Income, median, $[a]	15 314		
No income reported	24 (12)	96	
≤15 000	84 (44)	87	
>15 000	85 (44)	72	.006
FPL[a]			
Not calculable[b]	31 (16)	97	
≤50 %	53 (28)	87	
≤100 %	37 (19)	92	
≤200 %	36 (19)	78	
>200 %	36 (19)	52	<.001

GED indicates general equivalency diploma.
[a] Statistically significant difference between clinics ($P < .05$) by χ^2 or Student's t test.
[b] No income or household size was reported.

TABLE 3 **Prevalence of HRSPs**

Parameter	n (%)	95% CI
No. of HRSPs ($N = 198$)		
0	36 (18)	—
1	55 (28)	—
2	63 (32)	—
≥3	44 (22)	—
Domain and problem ($N = 198–203$)[a]		
Access to health care ($N = 203$)	92 (45)	38–52
No health insurance for parent	43 (21)	15–26
No health insurance for child	19 (9)	5–13
Unable to receive medical care	39 (19)	13–24
Unable to fill prescription	37 (18)	12–23
Housing ($N = 202$)[b]	113 (56)	48–62
Homeless or living in homeless shelter	14 (7)	3–10
Doubled up	16 (8)	4–11
Utilities shut off	17 (8)	4–12
Major structural housing problems (≥1)	88 (44)	36–50
1	42 (21)	15–26
2	27 (13)	8–18
≥3	19 (9)	5–13
Food security ($N = 201$)[c]	78 (39)	31–45
CCHIP 1–4 (food-insecure)	56 (28)	21–34
CCHIP 5–8 (hungry)	22 (11)	6–15
Income security ($N = 198$)	34 (17)	11–22
Unemployed and looking for work	34 (17)	11–22
Intimate partner violence ($N = 198$)	28 (14)	9–19
Verbal violence	26 (13)	8–17
Physical violence	13 (7)	3–10
Physical violence within past month	7 (4)	0–6

[a] Domain number was based on completion of specific survey domain.
[b] Housing problems according to clinic: 48% (AHP) and 62% (CHC), $P < .05$ by χ^2.
[c] Food security problem according to clinic: 33% (AHP) and 43% (CHC), $P < .05$ by Student's t test.

race/ethnicity (Hispanic [85%] and black [84%] versus white [64%]; $P = .043$), relationship status (single, no partner [89%] versus married [72%]; $P = .021$), and percentage of the federal poverty level (FPL) (≤50% FPL [87%] versus >200% FPL [52%]; $P < .001$). Despite the demographic diversity and differences between sites, the percentage of families with ≥1 HRSP was similarly high at each clinic: 76% at AHP and 86% at CHC ($P = .029$).

Table 3 depicts the specific HRSPs experienced by the families. Problem prevalence in each social domain was based on the number of families who completed that domain's questions. Statistically significant differences between the sites for specific social problem prevalence occurred in the housing and income domains, as noted next.

Forty-five percent of families (95% confidence interval [CI]: 38–52) had a problem with access to health care, including no health insurance, unable to receive medical care, or unable to fill a prescription. In addition, 22% relied on "routine care" from either an emergency department or urgent care center or lacked a place for usual medical care.

Housing problems were the most prevalent HRSP (56%; 95% CI: 48–62), with a higher prevalence among the CHC participants (62%) compared with the AHP participants (48%; $P = .034$). Fifteen percent of the families were either homeless or doubled up; an additional 10% had experienced homelessness within the past year, and 22% expressed concern about being evicted. Eight percent of families had had their utilities shut off during the previous 12 months, and an additional 15% had had their utilities threatened. Forty-four percent of families had ≥1 major structural housing problems, and 24% had ≥2.[16]

Overall food insecurity was 39% (95% CI: 31–45) and was greater among CHC participants (43%) than AHP participants (33%; $P = .017$). The CCHIP scale identified 28% of families as "food insecure" (score of 1–4; limited food availability primarily affecting the parent) and an additional 11% of families as "hungry"

(score 5–8; limited food affecting the parent and the child). Eleven percent of families stated that they did not have "enough food to eat today." Food subsidy use was high; 54% of families were enrolled in the Supplemental Nutrition Program for Women, Infants, and Children, and 40% received food stamps.

Income insecurity was narrowly defined as being "unemployed and looking for work"; 17% of families (95% CI: 11–22) met this criterion. An additional 34 (17%) parents stated that they were interested in getting a paid job. A total of 108 (55%) families had an income of $15 000 or less or no reported income (61% ≤100% FPL). Twelve percent of parents reported that their child did not go to the doctor because the parent could not leave school or work, and 18% of parents reported that their child had not gone to the doctor because of financial concerns.

Fourteen percent of parents (95% CI: 9–19) had experienced intimate partner violence within the past year; 13% reported being "emotionally or verbally abused," including threats of harm, and 7% reported physical violence. Four percent had experienced physical violence within the past month. Seven percent of parents reported not feeling safe in their current relationship. Of the 28 parents who experienced intimate partner violence, only 5 (18%) had seen a doctor secondary to abuse.

Screening, Referral Need, and Referral Agency Experience

Parent-reported screening rates in the previous year were low in all domains. Screening rates by health-related social domains were: access to health care, 23%; housing, 31%; food security, 17%; income security, 21%; and intimate partner violence, 36%. Comprehensive screening of families was minimal. Of the 198 families who completed all 5 domains, only 2% (5 of 198) had been screened in all 5 domains, and 32% (66 of 198) had not been screened in any domain. Table 4 shows the screening rate, referral need, referral receipt, and referral agency experience. Screening rates between clinics differed only in the housing domain (22% [AHP] vs 39% [CHC]; $P = .037$).

Referral need (referral received or wanted) ranged from a low of 15% for intimate partner violence to a high of 44% for housing. For each domain, referral receipt percentage was calculated with respect to the total number of referrals needed. In aggregate, 143 (70%) of 205 families identified a need for referral in ≥1 domain, and 101 (49%) of 205 had ≥1 unmet referral need. With the exception of access to health care, fewer than half of families received needed referrals in each domain, with a low of 14% for income security and a high of 65% for access to health care.

Of families who reported receiving referrals, the majority contacted the referral agency; the lowest contact rate was for income referrals (55%), and the highest contact rate was for housing referrals (68%). The majority of referred parents found the referral agencies helpful, with the 1 notable exception of agencies that assist with income security, which were found helpful by only 17% (1 of 6) of families. Families found other referral agencies significantly more helpful: helpfulness of agencies that assist with access to health care, 92% (24 of 26); with housing, 71% (12 of 17); with food security, 94% (15 of 16); and with intimate partner violence, 100% (8 of 8).

Screening Desirability

More than 80% of parents said that they would "welcome" or "not mind at all" inquiries about problems within each domain (Fig 2). When asked specifically about the acceptability of using a computer system to screen and refer families for HRSPs at the pediatrician's office during a well-child visit, 92% responded that they would "welcome it" or "not mind at all."

DISCUSSION

This study found that despite high rates of HRSPs, reported screening and referral rates were low among families in 2 urban populations. Our research was unique in that it demonstrated the feasibility of using a computer-based questionnaire in pediatric outpatient clinical settings to ask families about HRSPs and referral needs.

Prevalence

Within each social domain, the problems that were identified in this population reflect similar findings in previ-

TABLE 4 **HRSP Screening, Referral Need/Receipt, and Referral Agency Experience Within Past 12 Months**

Domain	Respondents, *N*	Screened, *n* (%)	Needed, *n* (%)[a]	Received, *n* (% of Needed)[b]	Contacted, *n* (% of Referred)[b]	Helpful, *n* (% of Contacted)[b]
Access to health care	203	47 (23)	63 (31)	41 (65)	26 (63)	24 (92)
Housing[c]	202	63 (31)[c]	89 (44)	25 (28)	17 (68)	12 (71)
Food security	201	35 (17)	68 (34)	24 (35)	16 (67)	15 (94)
Income security	198	42 (21)	77 (39)	11 (14)	6 (55)	1 (17)
Intimate partner violence	198	71 (36)	30 (15)	14 (47)	8 (57)	8 (100)

[a] Needed indicates referral received or wanted.

[b] Percentage of previous column.

[c] Screening for housing problem according to clinic: AHP 22% and CHC 39%, $P < .05$ by χ^2.

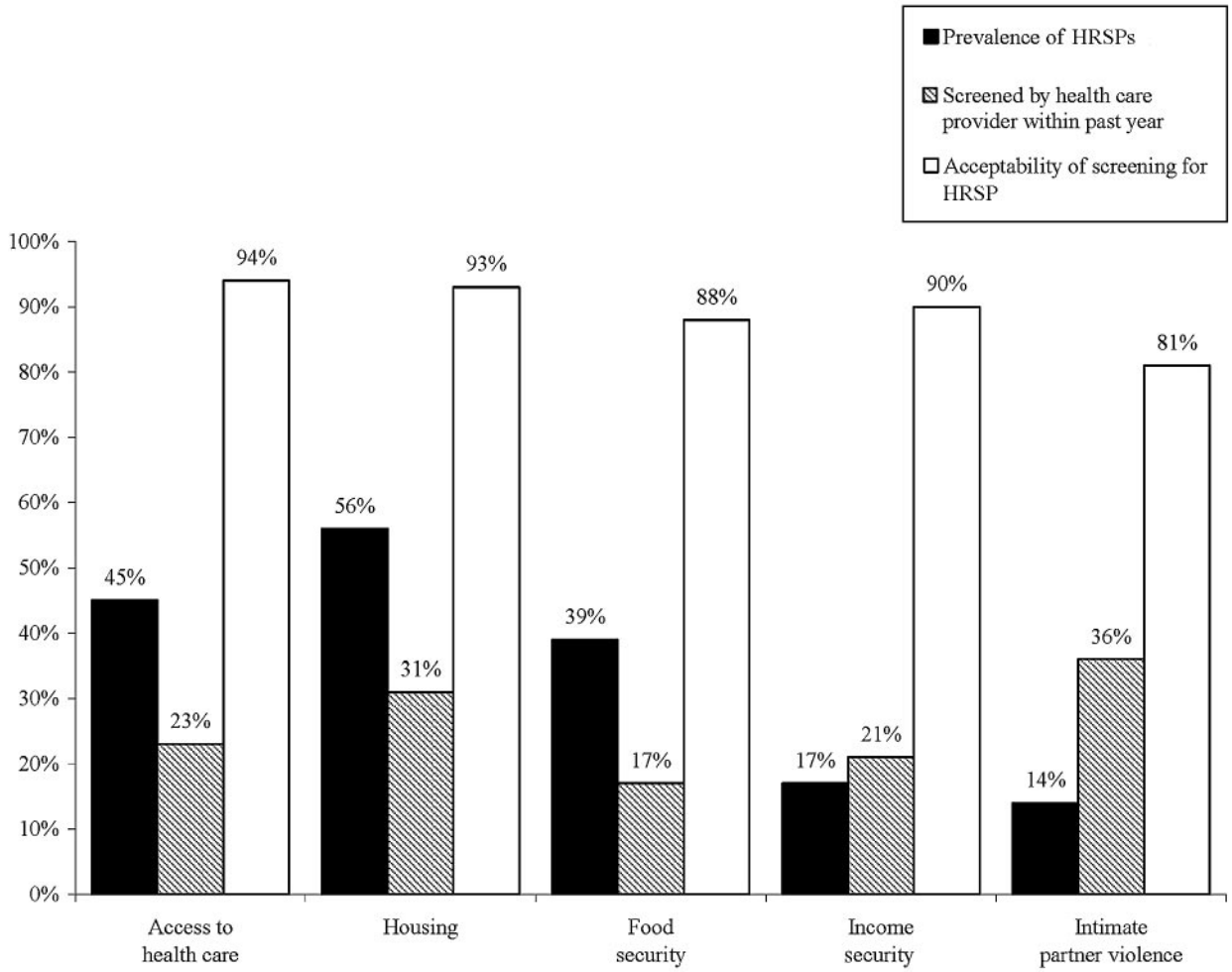

FIGURE 2
HRSPs: prevalence, screening, and acceptability.

ous studies.[24–29] It is notable that 45% of families have a problem with access to health care, although they were screened within a health care setting. This is likely a reflection of a high level of access afforded children via MassHealth (Medicaid) and the State Children's Health Insurance Program but denied to the parents who lack health insurance. Although the correlation between low income and high rates of HRSPs is not surprising, the frequent overlap of multiple problems is significant and likely compounds their impact on pediatric families. Within this study, 54% of families experienced ≥2 major HRSPs, an important finding that was elucidated by comprehensive rather than single-issue screening. Populations that are screened in nonmedical settings may have even higher rates of HRSPs, because families who are screened within a pediatric clinic already have some level of demonstrated access to health care.

Identification and Referral for HRSPs

Pediatricians may underestimate the prevalence of HRSPs and the value of providing referrals. Our finding that 49% of families have an unmet referral need demonstrates a gap between what families need and how their physicians are responding. National and local studies have demonstrated screening and referral rates for intimate partner violence as low as 5%[8,30]; no other known studies have evaluated screening for other major social problems.

Within this study, when families received referrals, 63% (73 of 115) contacted the agency, and of those, 82% (60 of 73) of the agencies contacted were considered helpful. Previous studies in the medical, social work, and psychology literature support the utility of referral interventions, including increased rates of health insurance,[31,32] improved food security, and increased economic resources.[33]

Feasibility of Computer-Based Screening and Referral

Can a computer-based screening and referral system within a pediatrician's office connect families to referral agencies? Sixty-two percent of families stated that they welcomed such a tool, and an additional 30% said that they would not mind at all using it. The Health Belief Model, which informed the conceptual development of

this project, describes the probability of an individual taking action to get help with a health problem as a balance among (1) an individual's perception of his or her susceptibility to and seriousness of the problem, (2) modifying factors that include perceived threats and cues to actions, and (3) the perceived benefits minus the perceived barriers to taking action.[34] A computer-based system that assesses HRSPs and provides feedback as well as actual referrals has the capacity to reinforce a family's awareness of the HRSPs, provide cues to action that can be reinforced by the pediatrician, explain the benefits of following up with the agencies, and, finally, reduce barriers by providing printed referrals that help families connect with appropriate agencies. Future research will evaluate the use and utility of a fully integrated screening and referral system and will assess families' desire to share the provided information with their physician and whether to include it within the medical chart.

Previous studies of computer use in medical settings support its acceptance. A study of computer use by families in medical settings demonstrated >90% support for use of a computer before each medical visit to improve health services delivery.[35] Other studies have shown that patient-centered computer systems are an effective means to obtain medical histories,[36–38] to make clinical decisions,[39,40] to develop asthma action plans,[41] to improve parental knowledge of key pediatric issues,[42] and to improve overall delivery of pediatric primary care.[43] As stated, this study was performed within the waiting rooms of an AHP and a CHC. Although barriers to using a computer in these settings, including crowded conditions and minimal privacy, may seem extremely challenging, 79% of eligible families participated and 94% of participating families completed the survey. We believe that this speaks to the strong desire of families to use computer systems that are designed to help them and their faith in privacy that is afforded to them by the privacy screens and the reinforced confidential nature of the tool. Of note, during the study, both doctors and nurses thanked the research assistants for giving their patients something meaningful to do while waiting to be seen.

Strengths and Limitations

The primary strength of this study was its comprehensive analysis of HRSPs in a broad array of domains collectively. In addition, it was conducted in the real-world settings of community and academic-based clinics using a computer. Although the study is limited by a relatively small sample size from 2 clinics in a single city, the populations studied reflect 2 of the largest minority ethnic groups in the United States (black and Hispanic). Both of these clinics have onsite social workers and missions to serve the underserved; therefore, the extent of social problems and referral rates may actually be greater than elsewhere. The generalizability of these findings to other clinical practices in other cities with potentially different social problems and a different range of social service agencies available will need additional study.

Self-reported responses may be affected by social desirability bias. The effect of social desirability bias might have led to families' minimizing problems or giving higher ratings than warranted on helpfulness of social services. However, previous studies of computer-based evaluation of sensitive and personal issues suggested that high rates of "honest" reporting can be expected by this modality.[39] Recall bias may lead parents to underestimate (or overestimate) whether they had been screened by a clinician for each of the HRSPs.

Another limitation is the lack of formal assessment of the burden on the clinics of screening families. However, active family self-assessment using a computer in the waiting room is likely to be more systematic and less time-consuming for the clinician than traditional assessment by interview.

CONCLUSIONS

Urban families with young children bear a significant burden of HRSPs that remain largely unobserved and unattended by pediatric practices. Among families who reported receiving referrals, most said that they made contact with designated agencies and found the agencies helpful in addressing these challenges. Pediatric practices have the potential to play an important role in enabling families to identify HRSPs and receive referrals to community resources. Finally, this study demonstrates the feasibility of using a computer-based system to implement family self-assessment in a routine outpatient setting and may thereby help address some of the barriers in providing these assessments and referrals in pediatric practices.

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